/	OIPE	
(0	MAY 0 2 2003	9. 1.4
1	PADEMIN'	·

Sheet 4 of 4 sheet(s) U.S. Department of Commerce, Patent and Trademark Office Docket No. Serial No. (PTO Form 1449 modified) APPM/5351 09/885.609 INFORMATION DISCLOSURE STATEMENT BY APPLICANT Applicant Confirmation No.: MAK, et al. 5337 (Use several sheets if necessary) Filing Date Group Examiner Berry, Renee R. June 20, 2001 2818 **U.S. Patent Documents** *Examiner Document Issue Applicant(s) Class Subclass Filing Date If Initial Number Date Name Appropriate A37 2002/0004293 01-10-2002 SOININEN, et 438 584 05-15-2001 al. A38 2001/0054769 12-27-2001 RAAIJMAKERS. 257 758 04-26-2001 et al A39 2001/0029094 10-11-2001 MEE-YOUNG. 438 597 09-16-1999 et al A40 2001/0024387 09-27-2001 RAAIJMAKERS. 365 200 02-22-2001 et al MAD A41 2001/0009695 SAANILA, et al. 07-26-2001 427 255.39 01-18-2001 M A42 2001/0002280 05-31-2001 SNEH 427 255.28 12-22-2000 Foreign Patent Documents *Examiner Document Date Country Class Subclass Translation Initial Number YES NO **B**1 B2 ВЗ OTHER ART *Examiner Including Author, Title, Date, Pertinent Pages, Etc. Initial C₁ C2 СЗ

11-10-03 *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

Date Considered

Examiner

Sheet 1 of 3 sheet(s)

U.S. Department of Commerce, Patent and Trademark Office					Docket No.		Serial No.		
(PTO Form 1449 modified)					AMAT/5351/CPI/L/B/ PJS		09/885,609		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT					Applicant		Confirmation No.		
(Use several sheets if necessary)						Mak, et al. Filing Date		5337 Group	
U.S. Paten	t Docu	ments		4 TRADEMARK					
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date Appropriate		
THE .	A1	6,548,424	04/15/03	Putkonen	438	785	04/16/01		
IM G	A2	6,534,395	03/18/03	Werkhoven, et al.	438	627	03/06/01		
MAY 2,3,2003	3	6,511,539	01/28/03	Raaijmakers, et al.	117	102	09/08/99		
'1780	A4	6,468,924	10/22/02	Lee, et al.	438	763	05/31/01		
To part on the	A5	6,458,701	10/01/02	Chae, et al.	438	680	10/12/00		
M	A6	6,416,577	07/09/02	Suntoloa, et al.	117	88	06/07/00		
M	A7	6,399,491	06/04/02	Jeon, et al.	438	680	04/06/01		
11	A8	6,372,598	04/16/02	Kang, et al.	438	399	06/16/99		
iii	A9	6,348,376	02/19/02	Lim, et al.	438	253	01/19/01		
W	A10	6,342,277	01/29/02	Sherman	427	562	04/14/99		
M	A11	6,333,260	12/25/01	Kwon, et al.	438	643	06/24/99		
M.	A12	6,287,965	09/11/01	Kang, et al.	438	648	02/23/00		
Ms	A13	6,207,487	03/27/01	Kim, et al.	438	238	10/12/99		
MAS	A14	6,197,683	03/06/01	Kang, et al.	438	643	09/18/98		
Foreign Pa	tent D	ocuments							
*Exammer		Document	Date	Country	Class	Subclass	Translation		
Initial	}	Number				ļ	YES	NO	
HU)	B1	02/45167	06/06/02	WO	H01L	27/00			
MU	B2	02/067319	08/29/02	WO	H01L	21/768			
MA	ВЗ	00/79576	12/28/00	WO	H01L	21/205			
OTHER AR	T.								
*Examiner Initial		Including Author	or, Title, Date, Perl	linent Pages, Etc.					
Mb	C1	Rossnagel, et al. "Plasma-enhanced Atomic Layer Deposition of Ta and Ti for Interconnect Diffusion Barriers," J. Vacuum Sci. & Tech. B., Vol. 18, No. 4 (July 2000), pp. 2016-20							
140	C2	Ritala, et al. "Atomic Force Microscopy Study of Titanium Dioxide Thin Films Grown by Atomic Layer Epitaxy," Thin Solid Films, Vol. 228, No. 1-2 (15 May 1993), pp.32-35							
Examiner	TUBE	in I			Date Con	sidered //	-18-12		

citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

							heet 2 of 3	shee
U.S. Department of Commerce, Patent and Trademark Office					Docket No.		Serial No	
(PTO Form					AMAT/53 PJS	51/CPI/L/B/	09/885,60	9
INFORMA	TION D	ISCLOSURE STA	TEMENT BY	APPLICANT	Applicant		Confirmati	on No
			\o,	. ~ [g]	Mak, et a	l.	5337	
Use sever	al shee	ts if necessary)	'MAY	(1 1000 B)	Filing Dat	e	Group	
		Examiner R. E	erry &		June 20.	2001	2818	
U.S. Pater	t Docu	ments		TRAUCHE	L			
Examiner	Γ	Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date Appropriate	
THE	A1	6,042,652	03/28/00	Hyun, et al.	117	719	09/07/99	
5/16	A2	5,526,244	06/11/96	Bishop	362	147	05/24/93	
AY LAN TOTO	£A3	2003/0082300	05/01/03	Todd, et al.	427	255.27	02/11/02	
Mu .	A4	2003/0072975	04/17/03	Shero, et al.	428	704	09/26/02	
TE A HOUSE	A5	2003/0049942	03/13/03	Haukka, et al.	438	778	08/22/02	
W	A6	2003/0032281	02/13/03	Werkhoven, et al.	438	640	09/23/02	
IN	A7	2003/0031807	02/13/03	Elers, et al.	427	569	09/17/02	-
MAN.	A8	2003/0013320	01/16/03	Kim, et al.	438	778	05/31/01	
Me	A9	2002/0187631	12/12/02	Kim, et al.	438	637	12/05/01	
111	A10	2002/0187256	12/12/02	Elers, et al.	427	99	07/30/02	
W	A11	2002/0182320	12/05/02	Leskela, et al.	427	250	03/15/02	
Mo	A12	2002/0177282	11/28/02	Song	438	300	12/18/01	
MO	A13	2002/0135071	09/26/02	Kang, et al.	257	767	01/16/02	
M	A14	2002/0121697	09/05/02	Marsh	257	751	04/30/02	
oreign Pa	tent D	ocuments						
Examiner		Document	Date Co.	Country	Class	Subclass	Transla	tion
nitial		Number					YES	N
W	B1	00/15865	03/23/00	wo	G23C	16/00		
'NUL	B2	99/29924	06/17/99	wo	C23C	16/04		TC
M.	B3	99/01595	01/14/99	wo	C30B	25/14		
THER AF	RT.	,						
Examiner nitial		Including Author,	Title, Date, Per	tinent Pages, Etc.				
Mb	C1			ım Dioxide Thin Film arch 1993) pp. 288-		c Layer Epila	xy," Thin S	olid
Mp	C2	Min, et al. "Chei Mat. Rec. Soc.		eposition of Ti-Si-N F ol. (1999)	ilms With	Alternating Se	ource Suppl	у."
xaminer	166	lul		AND ADDRESS OF THE PERSON STATE OF THE PERSON	Date Con	sidered /	1-10-03	

Sheet 3 of 3 sheet(s) U.S. Department of Commerce, Patent and Trademark Office Docket No. Serial No. (PTO Form 1449 modified) AMAT/5351/CPI/L/B/ 09/885.609 PJS INFORMATION DISCLOSURE STATEMENT BY APPLICANT Applicant Confirmation No.: Mak, et al. 5337 (Use several sheets if necessary) MAY 1 7 2003 Filing Date Group Examiner R. Berry June 20, 2001 2818 TRADE! **U.S. Patent Documents** *Examiner Document Issue Applicant(s) Class Subclass Filing Date If Initial Number Date Name Appropriate Α1 2002/0109168 08/15/02 Kim, et al 257 295 01/30/02 A2 2002/0106536 08/08/02 Lee, et al. 428 702 02/02/01 10/31/01 A3 2002/0105088 08/08/02 Yang, et al 257 774 2002/0081844 06/27/02 438 680 02/28/02 A4 Jeon, et al. **A**5 2002/0076837 06/20/02 Hujanen, et al. 438 3 11/28/01 A6 2002/0076507 06/20/02 Chiang, et al. 427 569 10/24/01 Α7 2002/0074588 06/20/02 Lee 257 306 07/06/01 Α8 2002/0061612 05/23/02 438 151 01/14/02 Sandhu, et al. Α9 04/25/02 427 331 08/08/99 2002/0048635 Kim, et al. 02/21/02 08/07/01 A10 2002/0021544 Cho. et al. 361 200 A11 2002/0000598 01/03/02 Kang, et al. 257 301 07/26/01 A12 2001/0054730 12/27/01 Kim, et al. 257 301 05/23/01 A13 12/13/01 Park 117 102 06/05/01 2001/0050039 A14 2001/0028924 09/27/01 Raaiimakers, et al. 365 200 02/22/01 Foreign Patent Documents *Examiner Date Country Class Subclass Translation Document Initial Number YES NO **B1** 98/51838 11/19/98 wo C23C 16/06 \Box JР В2 2001-111000 H01L 29/00 12/26/00 IM MM) 2.355.747 C23C 16/44 **B**3 05/02/01 GB OTHER ART *Examiner Including Author, Title, Date, Pertinent Pages, Etc. Initial Klaus, et al. "Atomically Controlled Growth of Tungsten and Tungsten Nitride Using Sequential Surface Reactions," Applied Surface Science, 162-163 (2000) 479-491

*EXAMINER: Initial if berence considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

Date Considered

C2

Examiner

Sheet 1 of 4 sheet(s) U.S. Department of Commerce, Patent and Trademark Office Docket No. Serial No. (PTO Form 1449 modified) APPM/5351 09/885.609 INFORMATION DISCLOSURE STATEMENT BY APPOCANT Confirmation No.: Applicant MAK, et al. 5337 MAY 0 2 2003 (Use several sheets if necessary) Filing Date Group & TRAPEN. Examiner Berry, Renee R. June 20, 2001 2818 **U.S. Patent Documents** *Examiner Document Issue Applicant(s) Class Subclass Filing Date If Initial Number Date Name Appropriate A1 6,482,740 11-19-2002 SOININEN, et 438 686 05-15-2001 al. 11-19-2002 RAAIJMAKERS. 438 A2 6.482.733 633 04-26-2001 et al Α3 6.482.262 11-19-2002 ELERS, et al. 117 84 10-13-2000 A4 6 475 910 11-05-2002 SNEH 43R 685 09-22-2000 A5 6 475 276 11-05-2002 ELERS, et al 117 84 10-13-2000 Α6 656 07-31-2000 6,455,421 09-24-2002 ITOH, et al. 438 A7 6.451.695 09-17-2002 SNEH 438 685 12-22-2000 A8 6.451.119 09-17-2002 SNEH, et al. 118 715 11-29-2000 635 Α9 6,447,933 09-10-2002 WANG, et al. 428 04-30-2001 A10 6,432,821 08-13-2002 DUBIN, et al. 438 678 12-18-2000 A11 6.423.619 07-23-2002 GRANT, et al. 438 589 11-30-2001 A12 6,420,189 07-16-2002 LOPATIN 438 2 04-27-2001 A13 6,391,785 05-21-2002 SATTA, et al. 704 08-23-2000 438 MM Foreign Patent Documents *Examiner Document Date Country Class Subclass Translation Initial Number YES NO MD WO 00/54320 09-14-2000 WIPO H011 21/44 x B2 вз OTHER ART *Examiner Including Author, Title, Date, Pertinent Pages, Etc. Initial C1 C2 C3 when 11-10-03

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

Date Considered

Examiner

U.S. Department of Commerce, Patent and Trademark Office					Docket No		Serial No.	
(PTO Form 1449 modified)				APPM/5351		09/885,609		
INFORMA	TION D	ISCLOSURE STA	TEMENT BY AF	PLICANT	Applicant		Confirmation	on No.:
				MAY 0 2 2003	MAK, et al.		5337	
(Use sever	al shee	ts if necessary)		\E	Filing Date		Group	
		Examiner Berry	, Renee R.	TRAPE WEEK	June 20, 2	001	2818	
U.S. Pater	t Docu	ments		_				
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date Appropriate	
MB	A14	6,369,430	04-09-2002	ADETUTU, et al.	257	382	04-02-200	1
MB	A15	6,368,954	04-09-2002	LOPATIN, et al.	438	627	07-28-2000	0
ME	A16	6,358,829	03-19-2002	YOON, et al.	438	597	09-16-1999	9
MA	A17	6,355,561	03-21-2002	SANDHU, et al.	438	676	11-21-200	0
110	A18	6,284,646	09-04-2001	LEEM	438	629	08-19-1998	8
MS	A19	5,989,623	11-23-1999	CHEN, et al.	427	97	09-19-199	7
MO	A20	5,972,179	10-26-1999	CHITTIPEDDI, et al.	204	192.17	09-30-199	7
RRB.	A21	5,306,666	04-26-1994	IZUMI	437	192	07-21-1993	
MA	A22	2002/0190168	12-19-2002	HALL, et al.	248	188.7	05-20-2002	
1440,	A23	2002/0162506	11-07-2002	SNEH, et al.	118	715	06-28-2002	
julo	A24	2002/0155722	10-24-2002	SATTA, et al.	438	704	04-15-2002	
MAS	A25	2002/0117399	08-29-2002	CHEN, et al.	205	125	02-23-200	1
For Ign Pa	tent D	ocuments						
*Examiner	Document Date Co		Country	Class	Subclass	Translat	ion	
Initial		Number	ļ				YES	NO
	B1		ļ		-			
	B2							
	B3							
OTHER AF	RT.							
*Examiner Initial		Including Author, T	itle, Date, Pertine	nt Pages, Etc.			1	
	C1						1	
	C2							
	C3	L				7	7	
Examiner	M		,		Date Consi		11-03	
		reference considere ormance and not con:						ıgh

MAY 0 2 2003

Document Number 2002/0106846 2002/0105088 2002/0090829 2002/0086507	Issue Date 08-08-2002 08-08-2002	Applicant(s) Name SEUTTER, et al.	APPM/538 Applicant MAK, et a Filing Date June 20, 2 Class 438	l. 2001 Subclass	09/885,60 Confirmation 5337 Group 2818 Filing Date Appropriate	on No.:	
s if necessary) Examiner Berry nents Document Number 2002/0105088 2002/0090829 2002/0086507	Issue Date 08-08-2002	Applicant(s) Name SEUTTER, et al.	MAK, et a Filing Date June 20, 2 Class	Subclass	5337 Group 2818	——————————————————————————————————————	
xaminer Berry nents Document Number 2002/0106846 2002/0105088 2002/0090829 2002/0086507	Issue Date 08-08-2002	Name SEUTTER, et al.	Filing Date June 20, 2 Class	Subclass	Group 2818		
xaminer Berry nents Document Number 2002/0106846 2002/0105088 2002/0090829 2002/0086507	Issue Date 08-08-2002	Name SEUTTER, et al.	June 20, 2	Subclass	2818 Filing Date		
Document Number 2002/0106846 2002/0105088 2002/0090829 2002/0086507	Issue Date 08-08-2002	Name SEUTTER, et al.	Class	Subclass	Filing Date		
Document Number 2002/0106846 2002/0105088 2002/0090829 2002/0086507	Date 08-08-2002	Name SEUTTER, et al.					
Number 2002/0106846 2002/0105088 2002/0090829 2002/0086507	Date 08-08-2002	Name SEUTTER, et al.					
2002/0105088 2002/0090829 2002/0086507		al.	438	200			
2002/0090829 2002/0086507	08-08-2002		1	200	02-02-200	1	
2002/0086507		YANG, et al.	257	774	10-31-200	1	
	07-11-2002	SANDHU, et al.	438	761	01-21-200	2	
	07-04-2002	PARK, et al.	438	585	12-26-200	1	
2002-0076507	06-20-2002	CHIANG, et al.	427	569	10-24-200	1	
2002/0061612	05-23-2002	SANDHU, et al.	438	151	01-14-200	2	
2002-0055235	05-09-2002	AGARWAL, et al.	438	430	10-29-200	1	
2002/0048880	04-25-2002	LEE	438	253	08-08-2001		
2002/0037630	03-28-2002	AGARWAL, et al.	438	430	10-29-2001		
2002/0031618	03-14-2002	SHERMAN	427	569	10-09-2001		
2002/0019121	02-14-2002	PYO	438	618	06-20-200	1	
cuments							
Document Number	Date	Country	Class	Subclass	Transla	tion	
Number					YES	NO	
			1	1			
	<u> </u>						
	i						
				-			
Including Author, T	itle, Date, Pertine	nt Pages, Etc.					
					70.1		
					100		
1			Date Cons	idered ://	1-10-03		
	/ reference considers	/ reference considered, whether or not	reference considered, whether or not citation is in conform	Date Considered, whether or not citation is in conformance with	Date Considered //	Date Considered \(\frac{1}{\infty} - \infty - 03\) reference considered, whether or not citation is in conformance with MPEP 609; Draw line through	